Siemens Matsushita Components

SAW Components
Low-Loss Filter

B4811
188,0 MHz

Data Sheet

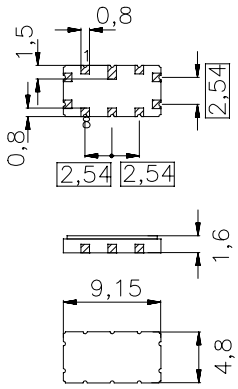
SMD ceramic package **QCC10B**

Features

- Low-loss IF filter for mobile telephone
- Channel selection in GSM, PCN systems
- Ceramic SMD package

Terminals

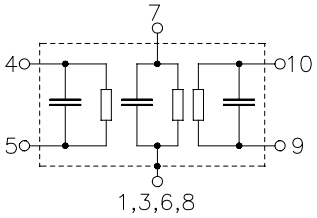
- Gold-plated Ni



Dimensions in mm, approx. weight 0,23 g

Pin configuration

9,10	Input, balanced or unbalanced
4,5	Output, balanced or unbalanced
7	External Coil
1,3,6,8	Case - Ground
2	Not connected



Type	Ordering code	Marking and Package according to	Packing according to
B4811	B39191-B4811-Z710	C61157-A7-A49	F61064-V8035-Z000

Electrostatic **S**ensitive **D**evice (**ESD**)

Maximum ratings

Operable temperature range	T	– 25 /+75	˚C	
Storage temperature range	T_{stg}	– 40/+ 85	˚C	
DC voltage	V_{DC}	0	V	
Source power	P_S	10	dBm	source impedance 50 Ω

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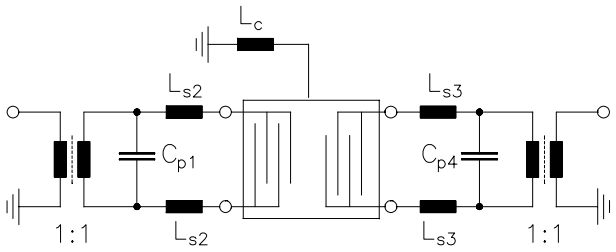
Characteristics

Operating temperature range: T = -25 ˚C to + 75 ˚C
Terminating source impedance: Z_S = 580 Ω || 210 nH
Terminating load impedance: Z_L = 820 Ω || 255 nH
External coil L_C = 120 nH

		min.	typ.	max.	
Center frequency (center frequency between 3 dB points)	f_c	—	188,0	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	3,5	5,0	6,5	dB
Variation in insertion loss	$\Delta\alpha_{min}$	—	1,0	3,0	dB
Amplitude ripple in passband (p-p)	$\Delta\alpha$				
f_c -60,0 kHz .. f_c+60,0 kHz		—	1,0	2,0	dB
f_c -80,0 kHz .. f_c+80,0 kHz		—	1,5	3,0	dB
Group delay at f_c	τ	3,0	4,0	5,0	µs
Group delay ripple (p-p)	$\Delta\tau$				
f_c -80,0 kHz .. f_c+80,0 kHz		—	1,0	1,5	µs
Relative attenuation (relative to α_{min})	α_{rel}				
$f_c \pm$ 200 kHz ... $f_c \pm$ 300 kHz		6,5	8	—	dB
$f_c \pm$ 300 kHz ... $f_c \pm$ 400 kHz		18	25	—	dB
$f_c \pm$ 400 kHz ... $f_c \pm$ 600 kHz		30	40	—	dB
$f_c \pm$ 600 kHz ... $f_c \pm$ 1,6 MHz		35	48	—	dB
$f_c \pm$ 1,6 MHz ... $f_c \pm$ 3,0 MHz		36	50	—	dB
$f_c \pm$ 3,0 MHz ... $f_c \pm$ 75,0 MHz		42	50	—	dB
f_c - 12,0 MHz		50	55	—	dB
Impedance at 188,0 MHz					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	580 ‖3,4	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	820 ‖2,8	—	Ω ‖ pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K^2
Turnover temperature	T_0	—	20	—	˚C

[1] Temperature dependance of f_c: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

Test matching network to 50 Ω (element values depend on pcb layout)



C_{p1} = 12,0 pF
C_{p4} = 10,0 pF
$L_{s2} = L_{s3}$ = 82 nH

L_c = 120nH

Transfer function